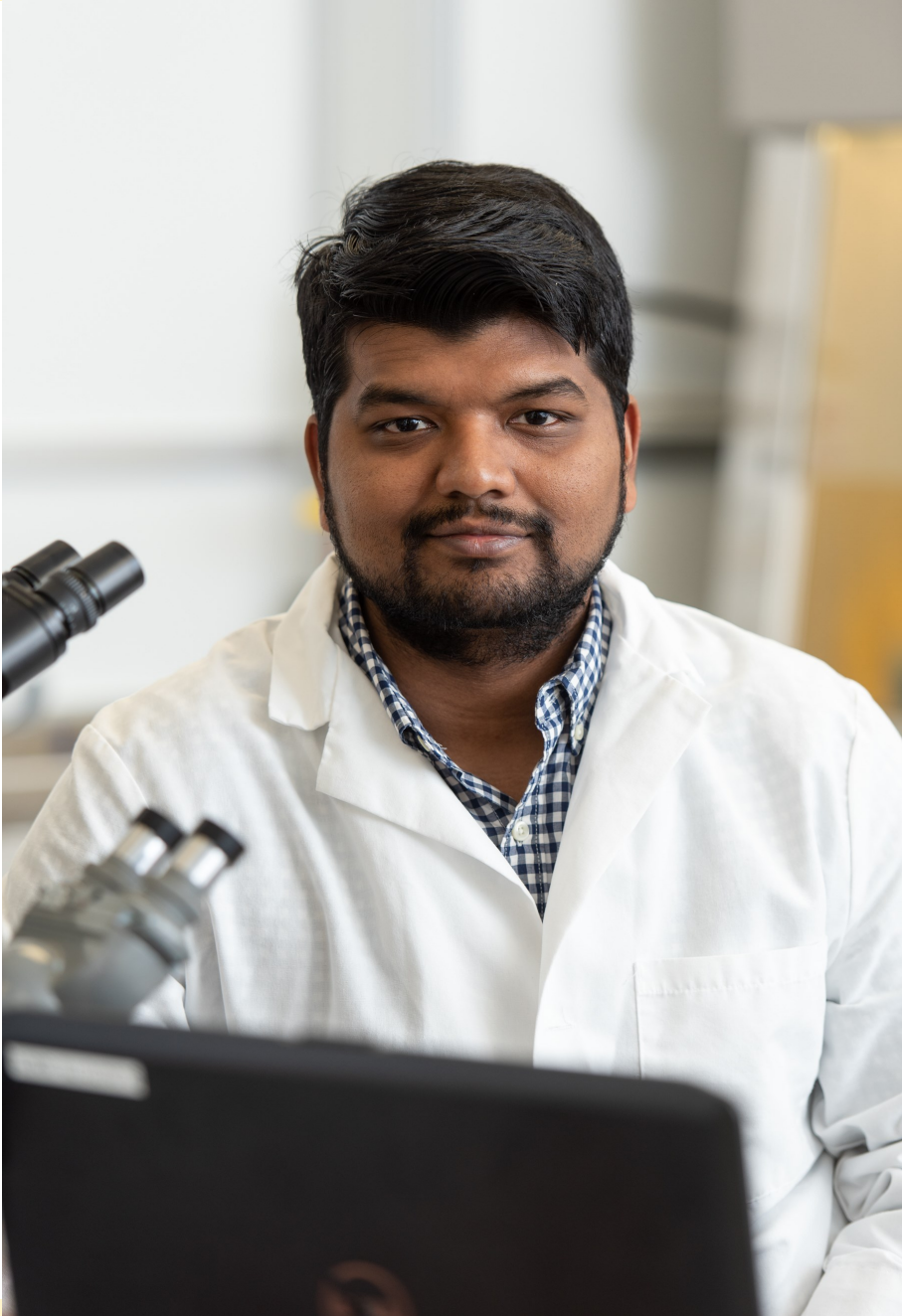


IME NEWSLETTER



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Dates to Remember:

- Spring 2020 Classes began on Jan. 13th
- Feb. 11th-12th Spring Career Expo
- Mar. 16th-20th Spring Break
- April 23rd Capstone Presentations
- April 24th Capstone Banquet
- April 24th Spring Advisory Board Meeting
- May 16th Spring Commencement

Cover Story: New Faculty—Dr. Lokesh Narayanan

COVER STORY: New Faculty Member, Dr. Lokesh Narayanan

If you've been to the IME department lately, you have most likely seen a new face. Dr. Lokesh Narayanan joined the department this fall, bringing with him a wealth of knowledge and energy! Dr. Narayanan received his B.S in Production Engineering at Madras Institute of Technology in 2013. Shortly after, he joined the graduate program in Industrial Engineering at the Edward P. Fitts Department of Industrial and Systems Engineering, NC State, and received his M.S. in Industrial Engineering with a thesis in the area of additive manufacturing for tissue engineering in 2017 and his Ph.D. in the area of quality monitoring of biomanufacturing processes including 3D Bioprinting in 2019. Outside academia, he has prior work experiences in automotive manufacturing, design and event management industry.



Dr. Narayanan dove in head first this fall by teaching two courses: CAD/CAM and Automation, both having lab components as well. Dr. Narayanan states "teaching has been my passion, it is so rewarding to interact with young minds and help build the workforce that is going to shape the future of North Dakota and the country." Already during his first semester here he has introduced new cloud-based software called Fusion 360, for CAD/CAM which seamlessly integrates drawing, design machining and animation. Student feedback has been very positive. On the other hand, with Narayanan's guidance and continued efforts, the department was also able to provide lab support to purchase and introduce PLCs, which are the industry standard, to students for the first time in the automation course. Dr. Narayanan was proud to say that his students built really interesting projects ranging from pinball machines to coin sorters. Dr. Narayanan's goal as an instructor is to continue providing hands-on learning experience to the students, improve as an instructor, and he would like to introduce research components within the coursework so as to inspire undergrads early on to get them involved in research.

As a researcher, Dr. Narayanan's interest centers on the development of scalable 3D biofabrication processes that enables the manufacturing of engineered tissues. Through his research, he is addressing the issues that hinder the translation of processes to the industry such as scalability and quality control. His latest research investigates the use of impedance sensing to monitor the biological quality characteristics of engineered tissue. His vision is to model the process function relationships and engineer semi-autonomous cyber-physical systems for tissue and biomedical device manufacturing. Ten years back, no one thought about manufacturing organs in a lab. But now, we have specialized machines to do just that. This is just a start, soon everyone will be able to have access to organs made with their own cells which fit to their own size and shape. But for this to happen, the organs have to be made in a factory setting, much like cars are manufactured, but with one hundred times more stringent quality control. It is with this goal in mind, that the research he is working on will provide a platform for achieving repeatable biological quality while improving the efficiency of the biomanufacturing process.

When asked what interested him in coming to NDSU, Narayanan stated, "NDSU is one of the premier research intuitions in the country and being a faculty here is an honor. My primary reason for choosing NDSU was because of the fit for my research area with the college of engineering and the IME department's vision for advancing the science of manufacturing and product development. With my research area being very interdisciplinary and multifaceted, I believe, I could develop a mutually beneficial research program collaborating with faculty with manufacturing expertise within the department and faculty with biomedical electronics expertise in the college of engineering. "

DEPARTMENT NEWS...



Ring Ceremony

Recent students who took part in the “Order of the Engineer” ring ceremony giving their “Horns Up” with their newly acquired rings!



Satpal Wadhwa

Fall Graduates:

Congratulations to all of our graduates!

Fall Undergrads:

IEM – 6

Mfg – 3

Grad students:

Satpal Wadhwa received his PhD and accepted a job as a research scientist at the Upper Great Plains Transportation Institute at NDSU.

NDSU IME Booth at 2019 Annual INFORMS Conference in Seattle, WA



Ben Deetz and Dr. Tim Le

The INFORMS annual meeting brings together over 7,000 people to the world’s largest O.R. and analytics conference. It features more than 1,000 sessions and presentations, opportunities to meet with leading companies, universities and other exhibitors, and an onsite career fair connecting top talent and other networking an educational events.

Fall Get-Together 2019

This past fall, faculty and students gathered to attend the annual back to school get together. Students had the opportunity to meet faculty, meet other students in the department, and talk with different clubs and organizations. Faculty and students enjoyed free pizza and treats, sponsored by the department, while they played games and discussed possible technical elective options.



AWARDS & RECOGNITION...

Dr. Lokesh Narayanan Awarded Vettel Family IME Fellowship

Dr. Lokesh Narayanan, assistant professor, became the first recipient of the newly-established IME Vettel Family Fellowship which was established by Matthew and Jenna Vettel. Fellowships are awarded to accomplished NDSU scholars to advance research, education, and outreach. The ceremony for Dr. Narayanan was held on November 14th in the NDSU McGovern Alumni Center.



President Bresciani, Matthew Vettel, Dr. Lokesh Narayanan, and Dr. Dean Kessler

Dr. Val Marinov and Dr. Lokesh Narayanan were among 11 people named as the inaugural cohort of the new NDSU Chapter of the National Academy of Inventors



Dr. David Grewell (President of NDSU NAI chapter), Dr. Val Marinov, and Dr. Lokesh Narayanan

The National Academy of Inventors (NAI) is a member organization comprised of U.S. and international universities, and governmental and non-profit research institutes, with more than 4,000 individual inventor members and fellows from over 250 institutions worldwide. It was founded in 2010 to recognize and encourage inventors with patents issued from the United States Patent and Trademark Office, enhance the visibility of academic technology and innovation, encourage the disclosure of intellectual property, educate and mentor students, and translate the inventions of its members to benefit society.

ADVISORY BOARD HAPPENINGS...

In spite of Mother Nature's plans for our first winter storm of the season, the fall Advisory Board Meeting was held on October 11, 2019 in conjunction with Homecoming. Highlights of the meeting were the induction of Dr. Spencer Duin and the late Dr. Wells into the IME Recognition of Excellence Award, the break-out sessions discussing, 1) Enrollment/recruitment, 2) curriculum, and 3) fundraising and a lunch at the College of Engineering Homecoming Showcase.

IME Recognition of Excellence Award

Dr. Spencer Duin awarded IME Recognition of Excellence Award

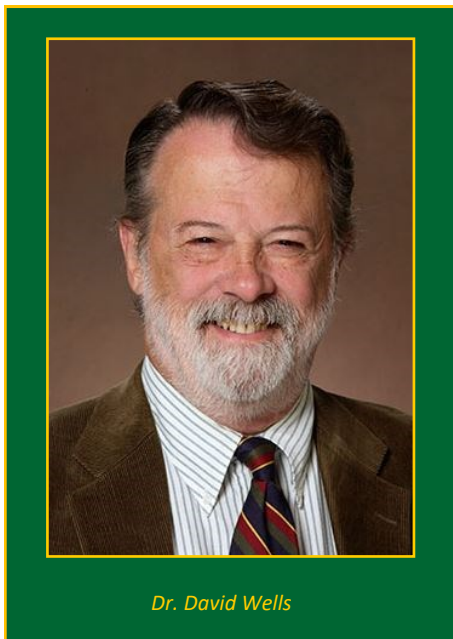
Spencer Duin graduated from NDSU with a BS in Industrial Engineering in 1965. Spencer has served the department and NDSU continuously by financially supporting NDSU advancements while also generously giving his time and expertise. He is a trustee of the NDSU Foundation and Alumni Association, chair of the Foundation's investment committee and a founding member of the College of Engineering Advisory and Advancement Board. In the spring of 2018, Dr. Duin established the Spencer G. and Carol A. Duin Endowment Fund to support NDSU Department of Industrial and Manufacturing Engineering faculty. This Endowment has allowed the department to recognize faculty and enhance both research and education, increasing the strength of the department and the impacts made on community, state and students. This significant gift speaks volumes to his vision and support for the department.



Dr. David Grewell, Dr. Spencer Duin, and IME Board President, Derek Holt

The late Dr. David Wells awarded IME Recognition of Excellence Award

In 2000, Dr. Wells accepted the invitation to come to the Industrial and Manufacturing Engineering Department at NDSU to pursue his love of teaching. He led the department for a number of years and continued as professor for 17 years. Dr. Wells had a unique ability to connect with his students. Not only did he teach the hard sciences involved with engineering courses, he was able to help students learn about business and industry to innovate and seek entrepreneurial opportunities. Dr. Wells' teaching style was discovery-led, allowing the students to seek out answers by applying theories in real-life scenarios. He set high standards, but then worked tirelessly to help students achieve them. His methodology drew students to sign up for his innovation team multiple semesters. Success to him meant seeing his students develop a new company, file a patent application, or seeing alumni career trajectories. This connection helped light the path for many students' careers and defines his significant contributions to the IME Department.



Dr. David Wells

STUDENT NEWS...

Student Organizations

IME students are active in several student organizations sponsored by the department. This semester, the IISE student chapter hosted a resume workshop with the NDSU Career Center and local business professionals. The chapter is also working on planning the upcoming spring semester trip. SWE, the Society of Women Engineers, attended the SWE National Conference in Anaheim, CA. SWE also teamed up with Tau Beta Pi to host Tech Kids, which is a program for kids in grades 3-5. SME, the Society of Manufacturing Engineering, hosted a rocket building competition where participants built their own rockets and then launched them into the air.



SME Rocket Building Participants



NDSU SWE Members at the SWE National Conference

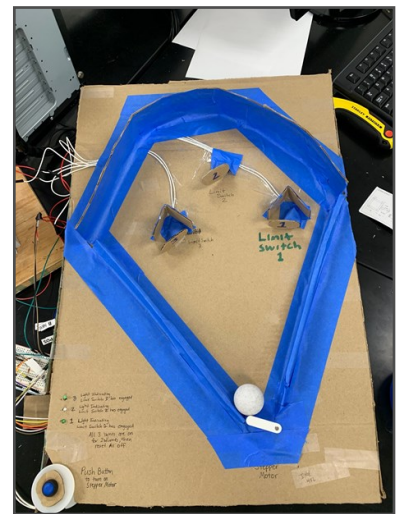
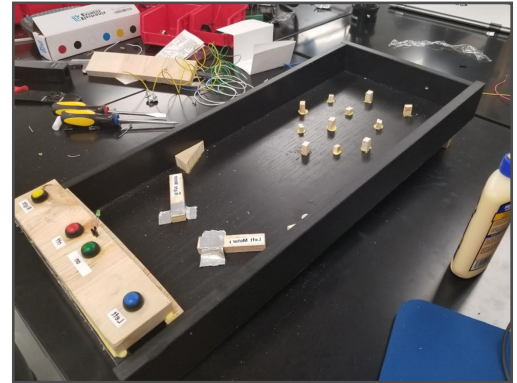
Timothy Straus, pursuing innovation!

Timothy Straus, a senior manufacturing engineering major, continues to pursue his passion for innovation. At the start of his academic career, Timothy became a Stanford University Innovation Fellow, where he worked to push and enhance innovation at NDSU. Not only did Timothy become part of one of the winning teams in NDSU's Innovation Challenge, but he also took part in helping update NDSU's 3D printing lab, now known at the Digital Fabrication Lab. Timothy continues to help and push innovation on campus by working with the NDSU Research and Technology Park to create a makerspace, and by working with Emerging Prairie to develop a space for their Grand Farm initiative. Keep up the good work, Timothy!



FALL AUTOMATION PROJECTS...

Automated Manufacturing Systems (IME 482) students learned how to use plc's (programmable logic control) that are used in industry automation. Several of the projects are pictured are a coin sorter and pinball machines.



RESEARCH/GRANTS...

ND EPSCoR Seed Grant

Dr. Yodo received a \$10,000 seed grant awarded to help integrate the use of drones into air traffic



OSA Grant (Obstructive Sleep Apnea)

An award of \$19,336 was received by Dr. Tim Q. Le to develop a system to help cancer patients with sleep problems related to OSA.



CB² Grant

Dr. Lokesh Narayanan and Dr. Grewell were awarded a grant for \$32,013 from CB² for interfacial healing for ultrasonic welding and 3D printing of bioplastics.

ND EPSCoR Seed Grant

Dr. Tim Q. Le received \$5,000 to help investigate obstructive sleep apnea (OSA) treatment methods.



Industrial & Manufacturing Engineering

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